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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/160,583 | 09/25/1998 | TAKAKO KAMO | 0050-1545-0 | 6527 |

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| EXAMINER |
|---|
| CREPEAU, JONATHAN |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1745 | 23 |

DATE MAILED: 07/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-23

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/160,583 | KAMO, TAKAKO | |
| | Examiner | Art Unit | |
| | Jonathan S. Crepeau | 1745 | |

*-- Th MAILING DATE of this communication appears on the cover sheet with the correspond nce address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *17 April 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *2-24* is/are pending in the application.

4a) Of the above claim(s) *6-18 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-5,19 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Response to Amendment*

1. This Office action addresses claims 2-21 and newly added claims 22-24. Claims 6-18 and 20 remain withdrawn from consideration. Claims 2-5, 19, and 21 remain rejected under 35 USC §103 over Kawakami et al., and claims 22-24 are newly rejected under 35 USC §103. The rejection of claim 5 over Plichta et al. and Kondo et al. has been withdrawn. Accordingly, this action is made final.

### *Claim Rejections - 35 USC § 103*

2. Claims 2-5, 19 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al (U.S. Patent 5,702,845).

Regarding claims 19 and 21, the reference teaches a secondary battery with a nonaqueous electrolytic solution in column 9, lines 39-60. In column 7, lines 44-60, the reference further teaches a positive electrode active material comprising a transition metal sulfide which may comprise copper, silver, or gold. The negative electrode may comprise a metal oxide, as taught in column 7, line 63. As disclosed in the Examples, the positive active material may be present in an amount of 92 % by weight of the positive electrode. Regarding claim 22, the electrolyte may comprise an ester such as propylene carbonate, or acetonitrile or sulfolane (see col. 9, lines 50-60).

The reference does not expressly teach that the *negative* electrode comprises a transition metal sulfide, or that the Cu, Ag, or Au is present in a range of 0.4 to 5 (or 0.6 to 2) per unit of sulfur.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be able to ascertain that the positive electrode of Kawakami et al. is capable of functioning as a negative electrode. In any secondary (rechargeable) battery, it is well known that the "positive" and "negative" electrode designations are dependent on whether the battery is being charged or discharged. Since the electrode materials of Kawakami et al. are substantially identical to those recited in the instant claims and disclosed in the instant specification (see page 13 for disclosure of a metal oxide), the "positive" and "negative" designations are dependent on the mode of operation of the battery. Accordingly, it is seen that the transition metal sulfide of Kawakami et al. may also function as a negative active material.

Regarding the stoichiometric compositional ranges set forth in the instant claims, these ranges are not seen to distinguish the claims from the reference. Compounds which fall within these ranges are known, as seen in the art of record, and therefore the artisan may ascertain the presence of these compounds in the battery of Kawakami et al. Additionally, the stoichiometry of the compositions may be routinely optimized by the artisan to affect the basic characteristics of the compounds and the resulting batteries. Accordingly, these ranges and compositions are not seen to distinguish over the reference.

***Response to Arguments***

3. Applicant's arguments filed April 17, 2002 have been fully considered but they are not persuasive. Applicants asserted that the Examiner's position taken above (that the positive and negative electrode designations of the electrodes are dependent on the mode of operation of a cell) is "manifestly incorrect." However, the Examiner maintains herein that the positive electrode of Kawakami et al. is capable of functioning as a negative electrode. Attention is directed to the patent of Holleck (U.S. Patent 4,127,703). The patent is generally directed to a nickel-hydrogen secondary battery. Starting at column 1, line 17, the reference discloses the following:

> Each cell has a positive (during discharge), nickel-containing electrode, consistently designated as, "cathode" herein, spaced from a hydrogen-containing negative (during discharge) electrode consistently designated as "anode" herein.

The Examiner submits that this passage clearly recognizes that the electrodes of a secondary battery reverse polarity during the charge/discharge cycle. Therefore, a person of ordinary skill would be reasonably apprised that the electrodes of the secondary battery of Kawakami et al. would also reverse polarity in this manner. The instant claims do not contain a recitation of whether the negative electrode is negative during the charging or discharging of the battery. Such a recitation might be helpful in distinguishing the claims.

Further, the above grounds of rejection are not based on the artisan being motivated to *physically* exchange the materials comprising the positive and negative electrodes. The equivalence of the "positive" and "negative" designations arises from the reversing *functions* of the electrodes during the cycling of the battery. No physical modification of the battery structure would be necessary.

Regarding the declaration filed on August 14, 2001, it is asserted in the arguments of April 17, 2002 that Applicants "have shown that a preferred positive electrode material [MnS] of the reference doesn't function as a negative electrode material in the present invention. This demonstration therefore shows that one of skill in the art could [not] readily predict what particular metal sulfide, oxide or the like would be useful as a negative electrode material in battery construction." However, the Examiner maintains herein the position taken in the previous Office action; i.e., that the data presented by Applicants is inconclusive. Applicants simply state in the declaration that the cell using MnS "did not work in the same charge/discharge test as in Example 1." The scope of this statement is unclear; i.e., it is not clear if the comparative cell is completely inoperable, or it is operable but merely shows a lesser capacity than the $Ag_2S$ cell of Example 1. Furthermore, this showing does not address copper and gold, which are within the scope of the present claims and which are "desirably" used as the sulfide in Kawakami et al. It is believed that there is not enough data on the record to support a conclusion that sulfides of silver, copper, and gold perform unexpectedly better than the sulfides of other metals disclosed by Kawakami et al.

***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (703) 308-2383. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 305-5408 or (703) 305-5433.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700

JSC

June 27, 2002